

FORM PTO-1390

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**10/009839**INTERNATIONAL APPLICATION NO.:  
PCT/FR00/01596INTERNATIONAL FILING DATE:  
09 JUNE 2000 (09.06.00)PRIORITY DATE CLAIMED:  
17 JUNE 1999 (17.06.99)

TITLE OF INVENTION: ANTI-SLIP DEVICE FOR AN ORTHOPEDIC IMPLANT

APPLICANT(S) FOR DO/EO/US: Christian MAZEL and Guy VIART

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
  2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
  3. ☒ This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
  4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
  5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
    - a. ☒ is transmitted herewith (required only if not transmitted by the International Bureau).
    - b. ☒ has been transmitted by the International Bureau. (see attached copy of PCT/IB/308)
    - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
  6. ☐ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
  7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)).
    - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
    - b. ☐ have been transmitted by the International Bureau.
    - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
    - d. ☐ have not been made and will not be made.
  8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
  9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
  10. ☐ A translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).
- Item 11. to 16. below concern document(s) or information included:
11. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
  12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
  13. ☒ A **FIRST** preliminary amendment.
  14. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
  14. ☐ A substitute specification.
  15. ☐ A change of power of attorney and/or address letter.
  16. ☒ Other items or information: INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT/IPEA/409), INTERNATIONAL SEARCH REPORT (PCT/ISA/210), APPLICATION DATA SHEET, ABSTRACT

U.S. APPLICATION NO. <i>(if known, see 37 CFR 1.5)</i> <b>10/009839</b>		INTERNATIONAL APPLICATION NO. PCT/FR00/01596		ATTORNEY'S DOCKET NO. 10172	
17. <input checked="" type="checkbox"/> The following fees are submitted:  <b>BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(5)):</b> Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO ..... \$ 1,040.00  International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO ..... \$ 890.00  International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... \$ 740.00  International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) ..... \$ 710.00  International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) ..... \$ 100.00  <div style="text-align: right;"><b>ENTER APPROPRIATE BASIC FEE AMOUNT =</b></div>				CALCULATIONS PTO USE ONLY	
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CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	\$	
Total claims	12 - 20 =	0	X \$18.00	\$	
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MULTIPLE DEPENDENT CLAIMS(S) (if applicable)			+ \$280.00	\$	
<b>TOTAL OF ABOVE CALCULATIONS =</b>				\$	1020.00
Reduction of 1/2 for filing by small entity, if applicable. Applicant claims Small Entity Status under 37 CFR 1.27.				\$	510.00
<b>SUBTOTAL =</b>				\$	510.00
Processing fee of \$130 for furnishing the English translation later than months from the earliest claimed priority date (37 CFR 1.492(f)).				\$	
<b>TOTAL NATIONAL FEE =</b>				\$	510.00
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property				\$	
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a.	<input checked="" type="checkbox"/>	A check in the amount of \$ <b>510.00</b> to cover the above fees is enclosed.			
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			December 17, 2001  By <u><i>Benoit Castel</i></u> Benoit Castel Attorney for Applicant Registration No. 35,041		

PATENTS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of  
Christian MAZEL et al.

Serial No. (unknown)

Filed herewith

ANTI-SLIP DEVICE FOR AN ORTHOPEDIC IMPLANT

PRELIMINARY AMENDMENT

Commissioner for Patents

Washington, D.C. 20231

Sir:

Prior to the first Official Action and calculation of the filing fee, please substitute specification pages 1-11 as originally filed, with new specification pages 1-11 as filed in the Article 34 amendment of May 17, 2001. The new specification pages 1-11 are marked "AMENDED SHEET" and are attached hereto.

Please substitute drawing Figures 1-7 as originally filed, with new drawing Figures 1-6 as filed in the Article 34 amendment of May 17, 2001. The pages containing drawing Figures 1-6 are marked "AMENDED SHEET".

Please substitute claims 1-12 as originally filed, which appear on pages 12-14, with Claims 1-12 as filed in the Article 34 amendment of May 17, 2001. The pages containing Claims 1-12 are marked "AMENDED SHEET" and are attached hereto.

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Christian MAZEL et al.

IN THE ABSTRACT:

Please delete the abstract as originally filed which appears on the cover page of the published application. Add new abstract as enclosed herewith on a separate sheet.

R E M A R K S

The above changes in the specification and claims merely place this national phase application in the same condition as it was during Chapter II of the international phase, with the multiple dependencies being removed. Following entry of this amendment by substitution of the pages, only claims 1-12 remain pending in this application.

Respectfully submitted,

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**ANTI-SLIP DEVICE FOR ORTHOPEDIC IMPLANT**

The present invention relates to an anti-slip device intended to maintain a fixation screw in a bore which has previously been made in the thickness of the wall of an orthopedic implant.

Devices of this type are known which are generally adapted to the shape of the orthopedic implant, for example protective caps which are fixed on the implant in order, on the one hand, to prevent slipping of the screws and, on the other hand, to protect the external environment.

It has been found that this type of device cannot be adapted to all types of orthopedic implants.

Fixation screws for an orthopedic implant are also known which comprise a working head with a segmented peripheral edge, and at the center of which head a threaded seat is provided in order to receive a plug. The latter makes it possible to spread the segmented peripheral edge of the working head so that it bears against the inner wall of the bore of the implant in order to block the fixation screw.

It has been noted that this type of screw can only be used for certain implants which comprise bores with a sufficient internal diameter to receive the head of the screw. This is because the latter has an external diameter of its head which is greater than that of the screws generally used for the fixation of implants. Moreover, this blocking device, formed by way of a plug inserted in the head of the screw, prevents any angular inclination of said screw and any displacement of the latter relative to the body of the implant.

It is these disadvantages that the present invention is

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intended more particularly to remedy.

5 The object of the anti-slip device according to the present invention is to prevent or to limit only the displacement in a direction parallel to the longitudinal axis of the bore receiving the screw relative to the body of the implant, while allowing the screw to be anchored in different angular directions relative to the longitudinal axis of the bore.

10

15 The anti-slip device according to the present invention is intended to maintain a fixation screw in a bore formed in the thickness of the wall of an orthopedic implant, characterized in that it comprises at least one seat which opens into the bore receiving the fixation screw and at least one retaining means which is able to deform elastically under a pressure stress in order to allow the screw to be passed into and installed in its bore, while the retaining means returns to an original, non-deformed, position upon removal of the pressure stress, so as to be located above the head of the screw in order to prevent the latter from this [sic] displaced relative to the implant and parallel to the longitudinal axis of the bore.

25

30 The anti-slip device according to the present invention comprises, in the same horizontal plane, a seat which is formed by a hole of small diameter opening out inside the bore, by a clearance space situated in the continuation of the hole and a retaining means which is formed by a rod, one part of which is fixed in the hole in such a way that the other part runs through the bore and opens out inside the clearance space in order to deform elastically in flexion under a pressure stress.

35

The anti-slip device according to the present invention comprises a rod which passes through the bore of the implant in a direction which is remote from the center

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C of intersection of the axes XX' and YY'.

The anti-slip device according to the present invention comprises a rod, a hole and a space which are arranged  
5 in the same horizontal plane which is perpendicular to the longitudinal axis of the bore.

The anti-slip device according to the present invention comprises, in the same horizontal plane, a seat which  
10 is formed by a circular groove arranged coaxially to the inside of the bore of the implant and a retaining means which is formed by an open washer arranged in said groove.

15 The anti-slip device according to the present invention comprises an open washer which has an external diameter, when not deformed, which is smaller than that of the circular groove, but greater than that of the bore of the implant.

20 The anti-slip device according to the present invention comprises, in the same horizontal plane, a seat which is formed by a space whose opposite edges are inclined in order to present a V-shaped profile and a retaining  
25 means which is formed by a rod of same profile introduced into the V-shaped space in order to deform elastically in flexion under a pressure stress.

The anti-slip device according to the present invention  
30 comprises a space which is arranged in such a way as to be centered about the point of intersection C of the main axes XX' and YY' of the bore.

The anti-slip device according to the present invention  
35 comprises a rod which is arranged inside the space in such a way that, on both sides of the center C, the bore is traversed by the inclined branches of said rod.

The anti-slip device according to the present invention

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comprises, in the same horizontal plane, a seat which is formed by two parallel holes opening out inside the bore of the implant and a retaining means which is formed by two rods cooperating respectively with the  
5 holes in order to deform elastically in flexion under a pressure stress.

The anti-slip device according to the present invention comprises holes which are provided to pass through the  
10 bore, each side of the center C, and in a direction parallel to that of the axis YY'.

The anti-slip device according to the present invention comprises holes which are provided to pass through the  
15 bore, each side of the center C, and in a direction parallel to that of the axis XX'.

The following description made with reference to the attached drawings, given as nonlimiting examples, will  
20 permit a better understanding of the invention, of its characteristics and of the advantages which it is likely to afford:

Figures 1 and 2 are plan views illustrating a bore of  
25 an orthopedic implant comprising an anti-slip device formed by a unilateral elastic rod.

Figures 3 and 4 are views representing a first and a second variant of the anti-slip device which is formed  
30 by an open elastic washer.

Figure 5 is a view similar to that of Figure 1, but showing a third variant of the anti-slip device which is formed by a V-shaped elastic rod.

35 Figures 6 and 7 are views representing a fourth and a fifth variant of the anti-slip device which is formed by bilateral elastic rods.

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In Figures 1 and 2, we have shown a part of an orthopedic implant 1, and more particularly a portion of its wall in which a bore 2 is formed in order to receive a screw 3 permitting the fixation of the implant against the bone of a patient.

The fixation screw 3 is intended to pass through the bore 2 in such a way that its working head 4 is lodged in a part of the bore intended for this purpose. The fixation screw 3 can be positioned inside the bore 2 in precise angular directions relative to the longitudinal axis of said bore in order to anchor in the most resistant part of the bone.

The orthopedic implant 1 comprises, above the working head 4 of the fixation screw 3, an anti-slip device 5 preventing said screw, anchored in the bone, from being displaced in translation relative to the implant, and more particularly in a direction parallel to the longitudinal axis of the bore 2.

The anti-slip device 5 comprises a seat which is formed, in the same horizontal plane, by a hole or seat 6 of small diameter opening out inside the bore 2 and a clearance space 7 situated in the continuation of the hole 6.

The hole or seat 6 and the space 7 are provided to the side of the bore 2, that is to say they are offset relative to the center of intersection of the main axes  $XX'$  and  $YY'$  of said bore.

In our illustrative embodiment, the bore 2 is in fact carried by the two main axes  $XX'$  and  $YY'$  and a third axis called "longitudinal axis" which is perpendicular to the two others, or perpendicular to a horizontal plane delimited by the circular surface of the bore.

The anti-slip device 5 comprises, inside the seat 6, 7,

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a retaining means which is formed by a rod 8 capable of deforming elastically in flexion under a pressure stress.

5 The rod 8 comprises a part which is fixed in the hole or seat 6 in such a way that the other part passes through the bore 2 and opens out inside the clearance space 7.

10 The rod 8, the hole 6 and the space 7 of the anti-slip device 5 are arranged in the same horizontal plane which is perpendicular to the longitudinal axis of the bore 2.

15 The rod 8 passes through the bore 2 of the implant 1 in a direction which is remote from the center of intersection of the axes  $XX'$ ,  $YY'$ , but parallel to the axis  $YY'$ , and contained in the space delimited by the circular surface of said bore.

20 In addition, the rod 8 passes through the bore 2 inside its circular surface, but along the edge of the latter.

25 Upon introduction of the fixation screw 3 inside the bore 2, and its anchoring in the bone in a defined angular direction, the pressure stress exerted on the rod 8 by the working head 4 deforms said rod in flexion inside the clearance space 7 in order to permit the passage of said screw.

30 It will be noted that when the screw 3 is completely introduced into the bore 2 or anchored in the bone of the patient, the rod 8, on account of its elasticity and the removal of the pressure stress, resumes its  
35 original, non-deformed, position above the working head 4 in order to prevent said screw from being displaced relative to the implant 1 in a direction substantially parallel to that of the longitudinal axis of the bore.

In Figure 3, we have shown a first variant of the anti-slip device 5 according to the present invention.

5 The anti-slip device 5 comprises a seat which is formed by a circular groove 9 formed inside the bore 2 of the implant 1 and coaxially to the latter, that is to say the circular groove 9 is centered about the point of intersection of the main axes  $XX'$  and  $YY'$ .

10 The anti-slip device 5 comprises, inside the seat 9, a retaining means which is formed by an open washer 10 capable of deforming elastically under a pressure stress.

15 The open washer 10 has an external diameter, when not deformed, which is smaller than that of the circular groove 9, but greater than that of the bore 2 of the implant 1.

20 Upon introduction of the fixation screw 3 inside the bore 2, and its anchoring in the bone in a defined angular direction, the pressure stress exerted on the open washer 10 by the working head 4 deforms the latter inside the circular groove 9 in order to permit the  
25 passage of said screw.

It will be noted that when the screw 3 is completely introduced into the bore 2 or anchored in the bone of the patient, the open washer 10, on account of its  
30 elasticity and the removal of the pressure stress, resumes its original, non-deformed, position above the working head 4 in order to prevent said screw from being displaced relative to the implant 1 in a direction substantially parallel to that of the  
35 longitudinal axis of the bore 2.

In Figure 4, we have shown a second variant of the anti-slip device 5 according to the present invention.

The orthopedic implant 1 is provided with two bores 2 which are each intended to receive a fixation screw.

5 The part of the bore 2 receiving the head 4 of each fixation screw 3 opens into a circular seat 17 which is offset axially relative to the bores 2 and which is able to receive an open washer 10 in order to form the anti-slip device 5. It will be noted that the open washer 10 passes partially through each bore 2 in order  
10 to be located above the head 4 of each screw 3 after introduction.

15 The open washer 10 is arranged in such a way that its opening 18 is placed above the bore 2 upon introduction of the screw 3, so that said washer can deform elastically under the pressure stress of said screw.

20 Thus, the open washer 10 of the anti-slip device 5 makes it possible to hold two fixation screws 3, on account of its axial position relative to the bores 2.

In Figure 5, we have shown a third variant of the anti-slip device 5 according to the present invention.

25 The anti-slip device 5 comprises a seat which is formed by a space 11 whose opposite edges are inclined in order to present a V-shaped profile arranged in a horizontal plane which is perpendicular to the longitudinal axis of the bore 2 of the orthopedic  
30 implant 1.

The space 11 is arranged in such a way as to be centered about the point of intersection of the main axes XX' and YY' of the bore 2.

35 The anti-slip device 5 comprises, inside the seat 11, a retaining means which is formed by a V-shaped rod 12 which can deform elastically in flexion under a pressure stress.

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The rod 12 is arranged inside the space 11 in such a way that, on both sides of the center of insertion of the axes  $XX'$  and  $YY'$ , the bore 2 is traversed by the inclined branches of said rod.

Upon introduction of the fixation screw 3 inside the bore 2, and its anchoring in the bone in a defined angular direction, the pressure stress exerted on the rod 12 by the working head 4 deforms the latter, and more particularly each of its inclined branches, inside the space 11 in order to permit the passage of said screw.

It will be noted that when the screw 3 is completely introduced into the bore 2 or anchored in the bone of the patient, the rod 12, on account of its elasticity and the removal of the pressure stress, resumes its original, non-deformed, position above the working head 4 in order to prevent said screw from being displaced relative to the implant 1 in a direction substantially parallel to that of the longitudinal axis of the bore 2.

In Figure 6, we have shown a fourth variant of the anti-slip device 5 according to the present invention.

The anti-slip device 5 comprises, in the same horizontal plane, a seat which is formed by two parallel holes 13 and 14 opening out inside the bore 2 of the orthopedic implant 1.

The holes 13, 14 are provided to pass through the bore 2 each side of the center of insertion of the axes  $XX'$  and  $YY'$ , and in a direction parallel to that of the axis  $YY'$ .

The anti-slip device 5 comprises, inside each hole 13, 14, a retaining means which is formed by a rod 15, 16

which is able to deform elastically in flexion under a pressure stress.

5 The rods 15, 16 are arranged respectively inside the holes 13, 14 in such a way as to pass through the bore 2 of the implant 1.

10 The rods 15, 16 and the holes 13, 14 of the anti-slip device 5 are arranged in the same horizontal plane which is perpendicular to the longitudinal axis of the bore 2.

15 The rods 15, 16 pass through the bore 2 of the implant 1 in a direction which is remote from the center of insertion of the axes XX' and YY' but parallel to the axis YY' and contained in the space delimited by the circular surface of said bore.

20 In addition, the rods 15, 16 pass through the bore 2 inside its circular surface, but along the edge of the latter.

25 Upon introduction of the fixation screw 3 inside the bore 2, and its anchoring in the bone in a defined angular direction, the pressure stress exerted on the rods 15, 16 by the working head 4 deforms these latter in flexion, resulting in a slight displacement of said rods inside the holes 13, 14, in order to permit the passage of said screw.

30 It will be noted that when the screw 3 is completely introduced into the bore 2 or anchored in the bone of the patient, the rods 15, 16, on account of their elasticity and the removal of the pressure stress, resume their original, non-deformed, position above the working head 4 in order to prevent said screw from being displaced relative to the implant 1 in a direction substantially parallel to that of the longitudinal axis of the bore 2.

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In Figure 7, we have shown a fifth variant of the anti-slip device 5 according to the present invention which consists principally in arranging the holes 13, 14 and the rods 15, 16, represented in Figure 6, in a direction which is parallel to the axis XX' of the bore 2.

In addition, the same rods 15, 16 can be used for several bores 2 in order to hold different fixation screws 3 (Figure 7).

It must also be understood that the above description has been given solely by way of example and that it does not in any way limit the scope of the invention, which would not be departed from if one were to replace the described details of its execution with any other equivalent.

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## CLAIMS

1. An anti-slip device intended to maintain a  
5 fixation screw (3) in a bore (2) formed in the  
thickness of the wall of an orthopedic implant  
(1), characterized in that it comprises at  
least one seat (6, 7; 17; 11; 13, 14) which opens  
10 into the bore (2) receiving the fixation screw (3)  
and at least one retaining means (8; 10; 12; 15,  
16) which is offset axially relative to the main  
axes XX' and YY' of the bore (2) so as to be able  
to deform elastically under a pressure stress in  
15 order to allow the screw (3) to be passed into and  
installed in its bore (2), while the retaining  
means returns to an original, non-deformed,  
position upon removal of the pressure stress, so  
as to be located above the head (4) of the screw  
20 (3) in order to prevent the latter from this [sic]  
displaced relative to the implant (1) in a  
direction parallel to the longitudinal axis of the  
bore.
2. The anti-slip device as claimed in claim 1,  
25 characterized in that it comprises, in the same  
horizontal plane, a seat which is formed by a hole  
(6) of small diameter opening out inside the bore  
(2), by a clearance space (7) situated in the  
continuation of the hole (6) and a retaining means  
30 which is formed by a rod (8), one part of which is  
fixed in the hole (6) in such a way that the other  
part runs through the bore (2) and opens out  
inside the clearance space (7) in order to deform  
elastically in flexion under a pressure stress.
- 35 3. The anti-slip device as claimed in claim 2,  
characterized in that the rod (8) passes through  
the bore (2) of the implant (1) in a direction

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which is remote from the point of intersection of the axes XX' and YY'.

4. The anti-slip device as claimed in claim 2,  
5 characterized in that the rod (8), the hole (6) and the space (7) are arranged in the same horizontal plane which is perpendicular to the longitudinal axis of the bore (2).

10 5. The anti-slip device as claimed in claim 1, characterized in that it comprises, in the same horizontal plane, a seat which is formed by a circular groove (17) offset axially relative to  
15 the bore (2) so as to pass partially through the latter, and a retaining means which is formed by an open washer (10) arranged in said groove.

6. The anti-slip device as claimed in claim 5,  
20 characterized in that the position of the circular seat (17) relative to the bores (2) is offset axially so as to pass partially through these, and to allow the open washer (10) to retain at least two screws (3) previously introduced into each  
25 bore.

7. The anti-slip device as claimed in claim 6,  
30 characterized in that the open washer (10) is arranged in the seat (17) in such a way that its opening (18) is placed above one of the bores (2) so as to be able to deform elastically.

8. The anti-slip device as claimed in claim 1,  
35 characterized in that it comprises, in the same horizontal plane, a seat which is formed by a space (11) whose opposite edges are inclined in order to present a V-shaped profile and a retaining means which is formed by a rod (12) of the same profile introduced into the V-shaped space (11) in order to deform elastically in

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flexion under a pressure stress.

9. The anti-slip device as claimed in claim 8,  
characterized in that the rod (12) is arranged  
5 inside the space (11) in such a way that, on both  
sides of the point of insertion of the axes XX'  
and YY', the bore (2) is traversed by the inclined  
branches of said rod.

10 10. The anti-slip device as claimed in claim 1,  
characterized in that it comprises, in the same  
horizontal plane, a seat which is formed by two  
parallel holes (13, 14) opening out inside the  
15 bore (2) of the implant (1) and a retaining means  
which is formed by two rods (15, 16) cooperating  
respectively with the holes (13, 14) in order to  
deform elastically in flexion under a pressure  
stress.

20 11. The anti-slip device as claimed in claim 10,  
characterized in that the holes (13, 14) are  
provided to pass through the bore (2) each side of  
the point of intersection of the main axes XX' and  
YY' and in a direction parallel to that of the  
25 axis YY'.

12. The anti-slip device as claimed in claim 10,  
characterized in that the holes (13, 14) are  
provided to pass through the bore (2) each side of  
30 the point of intersection of the main axes XX' and  
YY' and in a direction parallel to that of the  
axis XX'.

ABSTRACT

The anti-slip device includes at least one housing opening into the bore hole receiving the fixing screw and at least one retaining element which can be elastically deformed under the effect of pressure enabling the screw to pass into and be installed in the bore hole, whereby the retaining element returns to its position of origin and is not deformed when the pressure effect is withdrawn, being positioned above the head of the screw in order to enable the latter to be displaced in relation to the implant, parallel to the longitudinal axis of the bore hole.

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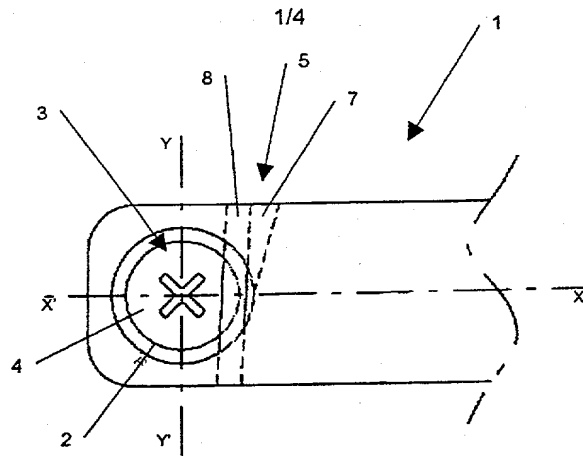


FIGURE 1

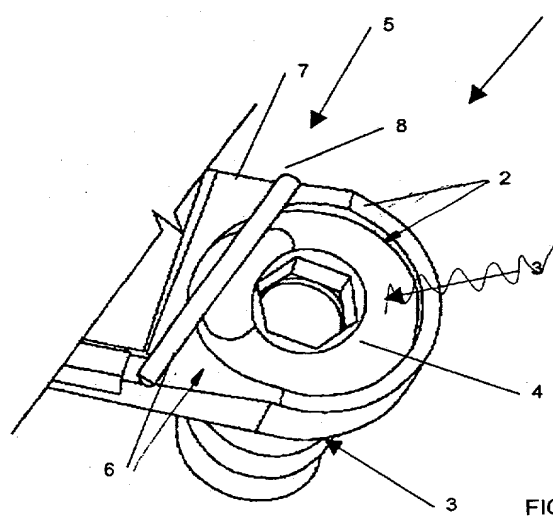


FIGURE 2

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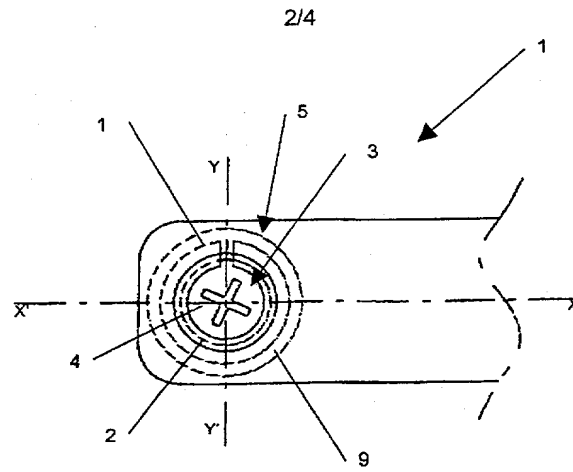


FIGURE 3

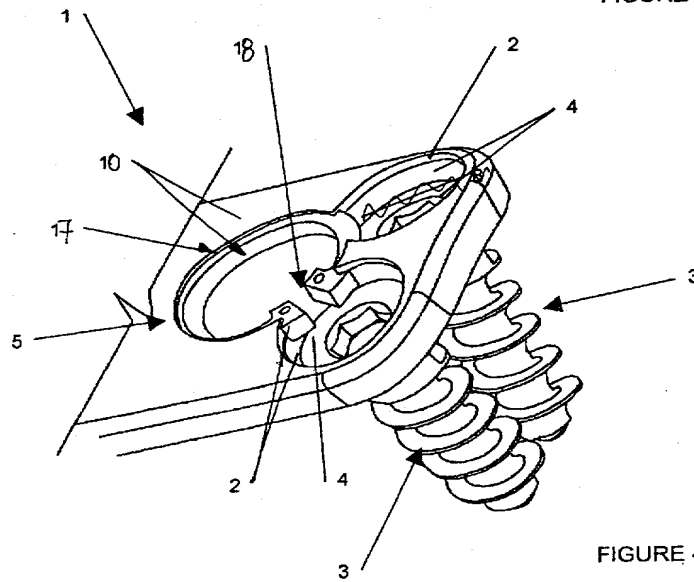


FIGURE 4



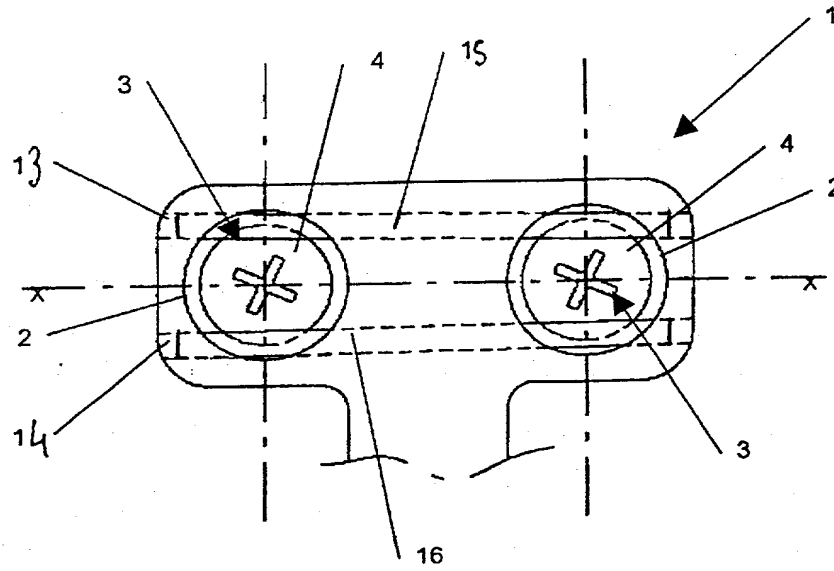


FIGURE 7.6

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## POWER OF ATTORNEY

Docket No. 10172

The undersigned hereby authorizes the U.S. attorney or agent named herein to accept and follow instructions from as to any action to be taken in the Patent and Trademark Office regarding this application without direct communication between the U.S. attorney or agent and the undersigned. In the event of a change in the persons from whom instructions may be taken, the U.S. attorney or agent named herein will be so notified by the undersigned.

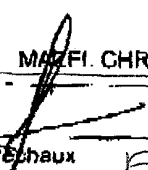
As a named inventor, I hereby appoint the registered patent attorneys represented by Customer No. 000466 to prosecute this application and transact all business in the Patent and Trademark Office connected therewith, including: Robert J. PATCH, Reg. No. 17,355, Andrew J. PATCH, Reg. No. 32,925, Robert F. HARGEST, Reg. No. 25,580, Benoît CASTEL, Reg. No. 35,041, Thomas W. PERKINS, Reg. No. 33,027, Roland E. LONG, Jr., Reg. No. 41,949, and Eric JENSEN, Reg. No. 37,855.

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of solo or first inventor: MAFFI CHRISTIAN

Inventor's signature: 

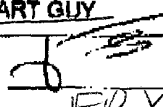
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Inventor's signature:

Date:

Residence:

Citizenship:

Post Office Address: